

MEMORANDUM

To: Chip Humphrey and Kristine Koch, U.S. Environmental Protection Agency, Region 10
From: Lower Willamette Group
Date: January 15, 2014
Re: Draft Decision Step Process Outline for incorporation of EPA's Remedial Action Levels into the revised Portland Harbor Feasibility Study

In a November 20, 2013 email, the U.S. Environmental Protection Agency (EPA) requested that the Lower Willamette Group (LWG) "Propose a process that incorporates EPA's July 2011 RALs (also presented at the 'all hands' meeting with the LWG last week) in the analysis of alternatives B, C, and D." The request was discussed with EPA on December 16, 2013, and it was agreed that many options exist for incorporating the Remedial Action Levels (RALs) into the revised Feasibility Study (FS). EPA requested that the LWG provide a decision step process outline for exploring the options for RAL incorporation, and this memorandum provides a draft recommendation for such a process. The expectation is that this outline will be further discussed to assist EPA decisions about incorporating the EPA RALs into the revised FS.

1.0 INFORMATION PRESENTED

EPA requested that the outline present the following:

- The likely decision steps for RAL incorporation
- Key questions that would need to be asked at each step
- An estimate of the level of effort to complete each step

These items are discussed in the following sections. The level of effort is expressed in terms of time to complete the work with time ranges provided that relate to the potential range of decisions EPA could make at each step. The time estimates include time to prepare materials to assist EPA. The time estimates do not include time for EPA review or text revisions to the FS. In addition, for each decision step, the additional decisions or information that would be needed for that step to allow efficient redevelopment of the alternatives is outlined below.

Note that EPA's original request relates to reanalysis of Alternative B, C, and D. Because of the change from individual DDD, DDE, and DDT RALs to a combined DDx RAL and EPA's application of the BaPEq RAL to the navigation channel, all draft FS alternatives (B through G) are impacted by the EPA RALs. Thus, the decision step outline below considers potential changes to all the alternatives.

Also note that the decision steps described below relate to the potential redevelopment of the alternatives, as requested by EPA. However, revision of the RALs would also require reanalysis and revision to the process described in draft FS Section 4. Section 4 of the FS presents a possible range of RALs and assesses the magnitude of risk reduction provided by that range of RALs. Specifically, estimates are made of the Surface-area Weighted Average Concentrations

Do Not Quote or Cite

This document is currently under review by US EPA and its federal, state and tribal partners, and is subject to change in whole or part

(SWACs) that would be achieved by the range of RALs at different time increments (i.e., immediately, 10 years, and 30 years after construction) at appropriate risk-based spatial scales (e.g., site-wide, river mile, shoreline half river mile). These comparisons are often referred to as “RAL curves.” The estimated SWACs are then compared to risk-based cleanup values (i.e., PRGs) to determine points in the RAL curves that span the zone of maximum incremental risk reduction and include at least one RAL at or beyond the point of minimal change in risk reduction.

Before any of the steps below are undertaken, this Section 4 analysis should be revised to ensure that any RAL changes are consistent with the framework of the FS including the precepts of RAL development described in draft FS. It may be found that some of the proposed new RALs may need to be further refined or that some RAL changes are not necessary to achieve the overall goals of the FS. It is possible that EPA has already conducted this analysis or something similar to it, in which case, the LWG would like an opportunity to review EPA’s analysis before any of the decisions steps outlined below are undertaken.

2.0 RAL DECISION STEP OUTLINE

A preliminary step in the process would be a decision from EPA regarding whether or not to include Alternative G in some or all of the steps that follow. Inclusion of Alternative G would involve additional work, impacting time range estimates at every step, because this alternative was only developed at a screening level of detail in the draft FS per EPA direction on the draft FS. The process that follows assumes that Alternative G will not be incorporated and evaluated at any step in the revised FS.

After the above preliminary step, the major steps discussed in the next sections would need to be addressed in some fashion by EPA and LWG.

2.1 Step 1—Areas and Volumes Calculation

The areas and volumes created by the new RALs would be the first step in any alternative development process. These calculations are generally assumed to follow the methods already described in the draft FS. The overall goal of this step is to answer the question: Are the changes in areas and volumes limited enough to be considered within the acceptable ranges of FS-level alternatives evaluations, or is the next step needed?

2.1.1 Additional Decisions or Information Needed for Step 1

1. EPA decision on benthic risk areas (to include in the RAL overlay)
2. EPA to provide RAL mapping layers or an explanation on how to create such layers (e.g., specify data density refinements)

2.1.2 Key Questions at the End of Step 1

1. Compare areas and volumes by Sediment Management Area (SMA) between the two sets of RALs/benthic areas.
2. How much do areas and volumes change?

Do Not Quote or Cite

This document is currently under review by US EPA and its federal, state and tribal partners, and is subject to change in whole or part

- a. How do RALs/benthic areas affect each alternative? Which alternatives are substantially affected?
- b. Are there substantial changes in area and volume to every SMA or just a few?
- c. What is the impact of the new RALs on the Depth of Impact calculations?
- d. Are the changes in areas and volumes limited enough to be considered within the acceptable ranges of FS-level alternatives evaluations, or is the next step (Step 2) needed?

2.1.3 Level of Effort to Complete Step 1

1. Estimated time to complete: **4 weeks** (from the time that additional information noted in Section 2.1.1 is provided by EPA)
 - a. This time estimate assumes that Alternatives B through F would be re-evaluated.

2.2 Step 2—SubSMA Development and Technology Assignments

The subSMAs created by the new RALs would be developed in this step and then the technology application criteria would be used to define technologies for each subSMA. All SMAs and subSMAs would be included in this evaluation so that the sum total of all changes to each alternative could be understood. However, only the new areas created by RAL changes would require development of new subSMAs, and new technologies assignments would only be needed for those new subSMAs. Existing subSMAs would be used for all the unchanged areas, to the extent feasible given the overall changes in the SMA boundaries. This process is assumed to generally follow the methods already described in the draft FS.

2.2.1 Additional Decisions and Information Needed for Step 2

1. EPA's technology application criteria (if revised from the draft FS) and/or EPA's technology assignments for each subSMA
2. EPA's Principle Threat Material and Oregon Hot Spot decisions (if revised from the draft FS). These concepts potentially impact technology assignments for some subSMAs (e.g., preferences for removal or treatment).
3. Other SMA decision factors, (e.g., Transition Zone Water [TZW] areas, if revised from the draft FS). Any changes to SMAs for other reasons would also need to be incorporated into the process.

2.2.2 Key Questions at the End of Step 2

1. How do subSMA development and technology assignments change the alternatives?
 - a. Do different technology assignments affect each alternative or a subset of alternatives?
 - b. Compare amount of area and number of subSMAs with new or different technologies.

Do Not Quote or Cite

This document is currently under review by US EPA and its federal, state and tribal partners, and is subject to change in whole or part

- c. Are the changes limited enough to be considered within the acceptable ranges of FS-level alternatives evaluations, or is the next step (Step 3) needed?

2.2.3 Level of Effort to Complete Step 2

1. Estimated time to complete: **4 to 6 weeks**. This estimate assumes the following:
 - a. EPA's technology assignment criteria are not very complicated and do not require new analyses to determine whether the criteria are met (e.g., additional erosion modeling to determine where enhanced monitored natural recovery [EMNR] is appropriate).
 - b. The low range estimate assumes that few additional changes are made to subSMAs due to additional issues like hot spots or TZW areas and five or fewer alternatives are revised.
 - c. The high range estimate assumes that a few other small changes to subSMAs are needed due to additional issues and five or more alternatives are revised.

2.3 Step 3—Develop Full Description of Each Alternative

This step provides a full description of the alternatives, including all the characteristics needed for an FS-level evaluation of the alternatives. Key characteristics would include sequence of remediation, duration, and cost estimates. This step is described in Section 7 of the draft FS, and the description below assumes that the process in Section 7 would generally be followed.

2.3.1 Additional Decisions and Information Needed for Step 3

1. EPA's disposal site option selections for each alternative.
2. EPA's input on alternative options to be presented in the revised FS (e.g., final list of integrated and removal focused options).
3. EPA's choices of representative technology process options for each technology type, including the following:
 - a. Type of dredging to represent removal in general (e.g., mechanical or hydraulic)
 - b. Transloading and transport assumptions
 - c. In situ treatment methods
 - d. Capping standard cross sections
 - e. Dock removal requirements
 - f. Rigid barrier requirements during removal.
4. Any changes to long term monitoring or operations and maintenance assumptions.
5. EPA's sequencing assumptions (e.g., how to decide which SMAs go first/last).
6. EPA decision on production rates and residuals and release assumptions.

Do Not Quote or Cite

This document is currently under review by US EPA and its federal, state and tribal partners, and is subject to change in whole or part

7. Any changes to cost calculation methods coming from the ongoing EPA cost estimate reviews.

2.3.2 Key Questions at the End of Step 3

1. Compare durations and costs (at least as a first screening) between the alternatives with the two sets of RALs.
2. How much do these descriptions change the alternatives?
 - a. Do the details above affect each alternative or a subset of the alternatives?
 - b. Are there large scale changes in the volume of removal or duration?
 - c. Are there large scale changes in the costs of the alternatives?
 - d. Are the changes limited enough to be incorporated into the FS as part of an uncertainty analysis or is the next step needed?

2.3.3 Level of Effort to Complete Step 3

1. Estimated time to complete: **4 to 8 weeks**. This estimate assumes the following:
 - a. EPA's additional information, per the items above, are relatively straightforward, are all available before this timeline starts, and do not require new analyses to determine any of the alternative characteristics. It also assumes that the cost estimating methods do not change substantially.
 - b. The low range estimate assumes that few additional changes are made to the existing alternative options and representative technology assumptions as currently presented in the draft FS and five or fewer alternatives are revised.
 - c. The high range estimate assumes that some other small changes to the alternative options and representative technology assumptions are needed and five or more alternatives are revised.

2.4 Step 4—Conduct Full Evaluation of Each Alternative

This step would use the fully described alternatives from Step 3 and conduct necessary evaluations of those alternatives to support Sections 8, 9, and 10 of the revised FS, which evaluate the alternatives against the nine Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) criteria and reach conclusions about the best performing alternatives. (Again, this work would not include rewriting the text of these sections based on the new evaluations.)

2.4.1 Additional Decisions and Information Needed for Step 4

1. This step would require EPA decisions regarding which of the alternatives evaluations would be re-conducted. A very large array of possible combinations exists. For example, evaluations used in Sections 8, 9, and 10 of the draft FS include the following:
 - a. Monitored natural recovery (MNR) lines of evidence evaluation (Section 6.2.2)

Do Not Quote or Cite

This document is currently under review by US EPA and its federal, state and tribal partners, and is subject to change in whole or part

- b. RAL development figures and tables (Appendix Db)
- c. Remediation Goal and Sediment Management Area Sensitivity Analysis (Appendix E)
- d. Contents of the Site-wide Area of Potential Concern and Buried Contamination Analysis (Appendix Fa)
- e. Fate and Transport Modeling (Appendix Ha)
- f. Bioaccumulation Modeling (Appendix Hb)
- g. Capping Effectiveness and Stability Modeling (Appendix Hc and Sections 6.2.5 and 6.2.6)
- h. Dredging Water Quality Evaluation (Appendix Ia)
- i. Evaluation of Dredge Residuals Management (Appendix Ib)
- j. Air Pollutant and Greenhouse Gas Emissions Inventory (Appendix Ic)
- k. Selection and Evaluation of Disposal Options (Appendix Ja/Jb and subsections of Section 8 and 9)
- l. Sediment Transport Modeling (Appendix La)
- m. HEC-RAS Hydrodynamic (Flood) Modeling (Appendix Lb)
- n. Preliminary Draft Clean Water Act Section 404(B)(1) Evaluation (Appendix M)
- o. Green Remediation evaluation (Appendix N)
- p. Treatment Technology Screening Evaluation (Appendix S)
- q. Long term Monitoring and Contingency Program Outline (Appendix T)
- r. Additional Analyses to Support Comparative Evaluation of Alternatives (Appendix U), including the following:
 - i. Alternatives screening evaluation
 - ii. Compliance with applicable or relevant and appropriate requirements (ARARs) evaluation
 - iii. Long-term effectiveness and performance evaluations
 - iv. Short-term effectiveness evaluations
 - v. Additional evaluations supporting MNR evaluation
 - vi. Disposal site effectiveness and implementability evaluations
 - vii. Analyses and Graphics supporting Section 10 conclusions

2.4.2 Key Questions at the End of Step 4

- 1. No further decision comparisons are necessary. At this point, EPA would simply use the evaluations selected above to re-evaluate the new alternatives following the CERCLA process.

Do Not Quote or Cite

This document is currently under review by US EPA and its federal, state and tribal partners, and is subject to change in whole or part

2.4.3 Level of Effort to Complete Step 4

1. Estimated time to complete: **6 to 12 weeks**. This time estimate includes the following assumptions:
 - a. Both the low and high range estimates assume that the primary re-evaluation would be the fate and transport modeling. The low time estimate assumes that one alternative is re-modeled, and the high time estimate assumes that ten alternatives are re-modeled.
 - b. A further assumption is that while the fate and transport modeling is being conducted, some additional evaluations could also be accomplished from the list above. Those additional evaluations would need to be independent of and not interfere with the fate and transport modeling in order to not add any time to the overall time estimate. Also, those additional evaluations would need to be fairly limited in scope. For example, only a limited number of evaluations noted above could not be accomplished within this same overlapping time range.
 - c. This also assumes that EPA does not have other specific changes to the evaluations noted above. That is, the only variable that changes in the re-evaluation is the new alternative itself.